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0.8 — A few common C++ problems

👤 **ALEX**[1]   🕐 **DECEMBER 15, 2023**

In this section, we'll address some of the common issues that new programmers seem to run across with fairly high probability. This is not meant to be a comprehensive list of compilation or execution problems, but rather a pragmatic list of solutions to very basic issues. If you have any suggestions for other issues that might be added to this list, post them in the comments section below.

General run-time issues

Q: When executing a program, the console window blinks and then closes immediately.

First, add or ensure the following lines are near the top of your program (Visual Studio users, make sure these lines appear after #include "pch.h" or #include "stdafx.h", if those exist):

```
1   #include <iostream>
2   #include <limits>
```

Second, add the following code at the end of your main() function (right before the return statement):

```
1   std::cin.clear(); // reset any error flags
2   std::cin.ignore(std::numeric_limits<std::streamsize>::max(), '\n'); //
    ignore any characters in the input buffer until we find an enter
    character
3   std::cin.get(); // get one more char from the user
```

This will cause your program to wait for the user to press a key before continuing, which will give you time to examine your program's output before your operating system closes the console window.

Other solutions, such as the commonly suggested system("pause") solution may only work on certain operating systems and should be avoided.

Older versions of Visual Studio may not pause when the program is run in *Start With Debugging (F5)* mode. Try running in *Start Without Debugging (Ctrl-F5)* mode.

Q: I ran my program and get a window but no output.

Your virus scanner or anti-malware may be blocking execution. Try disabling it temporarily and see if that's the issue.

Q: My program compiles but it isn't working correctly. What do I do?

Debug it! There are tips on how to diagnose and debug your programs later in chapter 3.

General compile-time issues

Q: When I compile my program, I get an error about unresolved external symbol _main or _WinMain@16

This means your compiler can't find your main() function. All programs must include a main() function.

There are a few things to check:
a) Does your code include a function named main?
b) Is main spelled correctly?
c) When you compile your program, do you see the file that contains function main() get compiled? If not, either move the main() function to one that is, or add the file to your project (see lesson 2.8 -- Programs with multiple code files (https://www.learncpp.com/cpp-tutorial/programs-with-multiple-code-files/)[2] for more information about how to do this).
d) Did you create a console project? Try creating a new console project.

Q: I'm trying to use C++11/14/17/XX functionality and it doesn't work

If your compiler is old, it may not support these more recent additions to the language. In that case, upgrade your compiler.

For modern IDEs/compilers, your compiler may be defaulting to an older language standard. We cover how to change your language standard in lesson 0.12 -- Configuring your compiler: Choosing a language standard (https://www.learncpp.com/cpp-tutorial/configuring-your-compiler-choosing-a-language-standard/)[3].

Q: When trying to use cin, cout, or endl, the compiler says cin, cout, or endl is an 'undeclared identifier'

First, make sure you have included the following line near the top of your file:

```
1 | #include <iostream>
```

Second, make sure each use of cin, cout, and endl are prefixed by "std::". For example:

```
1 │ std::cout << "Hello world!" << std::endl;
```

If this doesn't fix your issue, then it may be that your compiler is out of date, or the install is corrupted. Try reinstalling and/or upgrading to the latest version of your compiler.

Q: When trying to use endl to end a printed line, the compiler says end1 is an 'undeclared identifier'

Make sure you do not mistake the letter l (lower case L) in endl for the number 1. endl is all letters. Make sure your editor is using a font that makes clear the differences between the letter lower case L, upper case i, and the number 1. Also the letter capital o and the number zero can easily be confused in many non-programming fonts.

Q: When compiling my program, I get a 'no newline at end of file' error

The C++ standard requires that all source (.cpp) files end in a newline. It's silly, but it is what it is. Go to the bottom of your source file(s), hit enter, save, and recompile.

Visual Studio issues

Q: When compiling with Microsoft Visual C++, you get a C1010 fatal error, with an error message like "c:\vcprojects\test.cpp(263) :fatal error C1010: unexpected end of file while looking for precompiled header directive"

This error occurs when the Microsoft Visual C++ compiler is set to use precompiled headers but one (or more) of your C++ code files does not #include "stdafx.h" or #include "pch.h" as the first line of the code file.

Our suggested fix is to turn off precompiled headers, which we show how to do in lesson [0.7 -- Compiling your first program (https://www.learncpp.com/cpp-tutorial/compiling-your-first-program/)][4].

If you would like to keep precompiled headers turned on, to fix this problem, simply locate the file(s) producing the error (in the above error, test.cpp is the culprit), and add the following line at the very top of the file(s):

```
1 │ #include "pch.h"
```

Older versions of Visual Studio use "stdafx.h" instead of "pch.h", so if pch.h doesn't resolve the issue, try stdafx.h.

Note that for programs with multiple files, every C++ code file needs to start with this line.

Q: Visual Studio gives an error like: "1MSVCRTD.lib(exe_winmain.obj) : error LNK2022: unresolved external symbol _WinMain@16 referenced in function "int __cdecl invoke_main(void)" (? invoke_main@@YAHXZ)"

You've likely created a Windows graphical application rather than a console application. Recreate your project, and make sure to create it as a Windows (or Win32) *Console* project.

Q: When I compile my program, I get a warning about "Cannot find or open the PDB file"

This is a warning, not an error, so it shouldn't impact your program. However, it is annoying. To fix it, go into the Debug menu -> Options and Settings -> Symbols, and check "Microsoft Symbol Server".

Something else

Q: I have some other problem that I can't figure out. How can I get an answer quickly?

As you progress through the material, you'll undoubtedly have questions or run into unexpected problems. What to do next depends on your problem. But in general, there are a few things you can try.

First, **ask a search engine**. Find a good way to phrase your question and do a search. If you are searching an error message, paste in the exact error message using quotes (exclude any filenames or line numbers). Odds are someone has already asked the same question and there is an answer waiting for you.

Second, **ask an AI** like ChatGPT via Bing (https://www.bing.com/chat)[5]. Start your question with "In C++," to get a C++ specific answer. Some ideas for things you can ask for:

- An explanation of some concept (e.g. "In C++, what is a local variable?").
- The difference between two things (e.g. "In C++, what is the difference between a pointer and a reference?")
- A demonstration of a concept (e.g. "In C++, write a short program that adds two numbers")

Note that AIs may return inaccurate or outdated information, and the programs they write will probably not follow modern best practices.

If the above fails, **ask on a Q&A board**. There are websites designed for programming questions and answers, like Stack Overflow (https://www.stackoverflow.com)[6]. Try posting your

question there. Remember to be thorough about what your problem is, and include all relevant information like what OS you're on and what IDE you're using.

Next lesson

0.9   Configuring your compiler: Build configurations

8

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Previous lesson

0.7   Compiling your first program

4

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B   **U**   **URL**   **INLINE CODE**   **C++ CODE BLOCK**   **HELP!**

Leave a comment...

Name*

@ Email*   ?

🐞 Find a mistake? Leave a comment above!?

👤 Avatars from https://gravatar.com/[13] are connected to your provided email address.

Notify me about replies: 🔔

POST COMMENT

361 COMMENTS   Newest ▾

NotLod

🕒 March 8, 2024 7:56 pm

I recommend the wonderful creator to make a section in Spanish for Spanish speakers if he can.

There are several people who like to learn but have complications when it comes to reading English, then it would be nice to make a section in Spanish ;)

👍 1   ↪ Reply   ⌃

> **Alan**
>
> 💬 Reply to NotLod [14] 🕒 March 24, 2024 4:22 pm
>
> Before programming, the first thing a person should do is learn English (or at least understand). Everything is in English.
> (I speak spanish)
>
> 👍 0   ↪ Reply

> **Carlos Manuel Martínez Zumaya**
>
> 💬 Reply to NotLod [14] 🕒 March 15, 2024 2:29 pm
>
> If the team behind this walk-through needs assistance at any time with a translation, I will be more than happy to help with that. My native language is Spanish, so I will not have problems with it. It is the least I can do as a thank you for creating this project.
>
> 👍 0   ↪ Reply

IceFloe

🕒 February 7, 2024 12:56 am

I can come back later if someday any errors arise on another device, but for now there have been no problems and everything is working without interruptions. I think that most often errors arise either from syntax, from using certain symbols incorrectly, or from using variables and functions incorrectly and the program cannot identify and apply them. And I also wanted to clarify, is an object file created for each function, array, block, or one object file per project?

👍 0   ↪ Reply
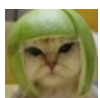
> **Alex** Author
>
> 💬 Reply to IceFloe [15] 🕒 February 7, 2024 12:19 pm
>
> One object file per source (.cpp) file.

👍 **5**   ➜ Reply

Chernes
🕐 January 23, 2024 2:12 pm

I have my adblocker off but I still haven't seen any ads. What should I do.

👍 0   ➜ Reply

Alan
💬 Reply to Chernes [16]   🕐 January 26, 2024 5:00 pm

𒐫𒐫𒐫𒐫𒐫

👍 0   ➜ Reply

david
💬 Reply to Chernes [16]   🕐 January 26, 2024 11:49 am

turn it off

👍 0   ➜ Reply

DivideandConquer
🕐 January 10, 2024 10:33 am

One thing to note if you can't find the answer on google search (there is a way to web search effectively with queries and operations:https://www.youtube.com/watch?v=BRiNw490Eq0), check the official documentation. For example, when installing C++ for Visual Studio Code, the official documentation was very useful for me. Always turn to the documentation on how to do something. I do not recommend using AI as it can assume the answer instead of confirming that you have certain basic steps down. I recommend only using tools like Bing chat, ChatGPT, and Vicuna for general questions like what is a binary search and show me an example. AI is not great at giving personalized questions.

👍 1   ➜ Reply

joacquo

🕐 December 27, 2023 7:17 am

im running CodeBlocks 20.03 on Arch, the program built without issues but when i tried to run it i got: Process terminated with status -1 (0 minute(s), 0 second(s)).
it is solved by installing "xterm" which is not mentioned in 0.6

👍 1   ➤ Reply

AbeerOrTwo

🕐 December 13, 2023 6:55 pm

chuggin along

👍 3   ➤ Reply

Reily

🕐 November 19, 2023 3:06 pm

Regarding the last blurb:

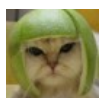"I have some other problem that I can't figure out. How can I get an answer quickly?"

Can you suggest joining a online community within the space (C/CPP) like discord? I try to avoid suggesting stackoverflow personally given how hostile people can be on that form when asking questions.

Along with that, is asking a question in general:
https://dontasktoask.com/

👍 0   ➤ Reply

> **Alex**   Author
>
> 💬 Reply to Reily [17]   🕐 November 20, 2023 11:58 am
>
> I'm not much of a discorder, so I don't know what communities exist and are active there. You might try https://www.reddit.com/r/learnprogramming.
>
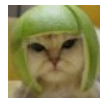> Perhaps other readers have suggestions.
>
> 👍 1   ➤ Reply
>
> > **Tristan**
> >
> > 💬 Reply to Alex [18]   🕐 December 2, 2023 6:54 am
> >
> > An AI like chatgpt or bing chat also from time to time provide usefull insights. Especially when looking for a starting point of where to find the problem and

subsequent fix. Could be a nice addition to the blurb. A warning is that they not always are able to help out.

👍 0   ↱ Reply

> **Alex** Author
> 💬 Reply to Tristan [19]   ⏱ December 3, 2023 4:33 pm
>
> Added. Thanks for the suggestion!
>
> 👍 0   ↱ Reply

Jordan
⏱ October 16, 2023 2:09 pm

I get this on my VS code "You have not agreed to the Xcode license agreements. Please run 'sudo xcodebuild -license' from within a Terminal window to review and agree to the Xcode and Apple SDKs license."

when i try to run my program and i can't figure out how to resolve this. Can someone please help thanks.
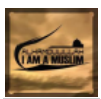I am using a Mac version.

👍 0   ↱ Reply

> **gregoriB**
> 💬 Reply to Jordan [20]   ⏱ October 21, 2023 10:11 am
>
> Did you run the command it's telling you to run?
>
> 👍 0   ↱ Reply

Mohamed
⏱ October 2, 2023 11:59 pm

First, add or ensure the following lines are near the top of your program (Visual Studio users, **make sure these lines appear after #include "pch.h" or #include "stdafx.h", if those exist**)

- my qs in the bold text part.
- Why should i make sure that `#include <limits>` appear after `#include "pch.h"` and `#include "stdafx.h"` ?
- and i want to ask another question, i make a small search about `std::cin.ignore()`, and i found that this function ignore the character that inserted when put the value, for example if the program want us to enter a value into variable, when we press enter (in keyboard) to enter the value into variable, the program will read a line, my question is: why

u add this parameter into `std::cin.ignore()`, this:

`std::numeric_limits<std::streamsize>::max(), '\n'` and u know that the only character will store is the line?, my mean that the best practice here is to make `n` parameter is empty because it is by default is `1` ?!

- I don't object to you, i just want to know why do u do this?!

✎ *Last edited 6 months ago by Mohamed*

👍 0   ➦ Reply

Alex   Author

💬 Reply to Mohamed [21]   🕐 October 3, 2023 9:16 pm

1. Because if you're using precompiled headers in Visual Studio, Visual Studio requires that "pch.h" or "stdafx.h" is listed first.
2. For example, if we do `std::cin >> x` where `x` is an int, and the user enters `1abc`, the `1` will be extracted to `x`, but the `abc\n` will still be in `std::cin` waiting for a future extraction. Doing

   `std::cin.ignore(std::numeric_limits<std::streamsize>::max(), '\n');`

   will remove all the extraneous characters up to an including the newline. Calling `std::cin.ignore()` without the first parameter will only remove a single character.

👍 1   ➦ Reply

Mohamed

💬 Reply to Alex [22]   🕐 October 8, 2023 9:05 am

- want to ask another question:

```
1   #include <iostream>
2   #include <limits>
3
4   int main ( )
5   {
6       int x{};
7       std::cin >> x;
8       std::cin.clear ( ); // reset any error flags
9       std::cin.ignore (
    std::numeric_limits<std::streamsize>::max ( ) , '\n' );
    // ignore any characters in the input buffer until we
    find an enter character
10      std::cin.get ( ); // get one more char from the user
    }
```

- i understand `std::cin.ignore()` and `std::cin.get()`
- my question: when u write this program, u wrote it because u want to stop the CMD and not make it disappear directly (See This[23]), i make a small search about `std::cin.clear()`, and all i get from this search that `std::cin.clear()`, it

clears the flags from error (if the input is invalid, the flag will be 1, so
`cin.clear()` will make it 0), **Why did u write it in your code when you answered the question? (see photo), I did not find any use for it in the code to solve the problem**

✎ *Last edited 6 months ago by Mohamed*

👍 0   ↪ Reply

Mohamed
💬 Reply to Mohamed [24] 🕐 October 8, 2023 9:16 am

after some search, i understand why now

- When an attempt to read from std::cin fails, the stream is placed into the error state. This means that future attempts to read from std::cin will also fail. To clear the error state and allow further reading from std::cin, you can call the std::cin.clear() function.

```
1   /*
2   * My Conclusion:
3   * --------------
4   * When I enter an invalid input:
5       * If i remove the `std::cin.clear()`, the progam
    will terminate directly and print 00
6       * if i remove the `std::ignore()`, the flag will
    rest but the invalid input still in the buffer
        * So, I have to write both
7   */
8   #include <iostream>
9   #include <limits>
10
11  int main ( )
12  {
13      int x{};
14      std::cin >> x;
15      std::cin.clear ( );
16      std::cin.ignore (   );
17      int y{};
18      std::cin >> y;
19
20      std::cout << x << y;
21  }
```

- **My Conclusion is right?**

✎ *Last edited 6 months ago by Mohamed*

👍 0   ↪ Reply

Alex Author
💬 Reply to Mohamed [25] 🕐 October 10, 2023 1:54 pm

Yes. Clearing `std::cin` ensures that stream is in a state where it can proceed normally. If the stream is still in the error state, the subsequent calls to `ignore()` and `get()` will be discarded.

👍 1   ↪ Reply

Mohamed
💬 Reply to Alex [26]   🕐 October 14, 2023 2:21 pm

ty

👍 0   ↪ Reply

Mohamed
💬 Reply to Alex [22]   🕐 October 4, 2023 9:26 am

ty

👍 0   ↪ Reply

HyperGeoX
🕐 September 23, 2023 1:01 pm

Whenever I try to run my first programm I get this error:

22:58:29 *** Incremental Build of configuration Debug for project HelloWorld ***
make all
Building file: ../HelloWorldWizard.cpp
Invoking: Cross G++ Compiler
g++ -O0 -g3 -Wall -c -fmessage-length=0 -MMD -MP -MF"HelloWorldWizard.d" -
MT"HelloWorldWizard.o" -o "HelloWorldWizard.o" "../HelloWorldWizard.cpp"
In file included from ../HelloWorldWizard.cpp:8:
../HelloWorldWizard.h: In function 'int main()':
../HelloWorldWizard.h:5:30: error: qualified-id in declaration before ';' token
5 | const char *std::cout;
  | ^
../HelloWorldWizard.cpp: At global scope:
../HelloWorldWizard.cpp:10:1: error: 'HelloWorldWizard' does not name a type
10 | HelloWorldWizard::HelloWorldWizard() {
  | ^~~~~~~~~~~~~~~~
../HelloWorldWizard.cpp:15:1: error: 'HelloWorldWizard' does not name a type
15 | HelloWorldWizard::~HelloWorldWizard() {
  | ^~~~~~~~~~~~~~~~
make: *[subdir.mk:20: HelloWorldWizard.o] Error 1
"make all" terminated with exit code 2. Build might be incomplete.

22:58:29 Build Failed. 4 errors, 0 warnings. (took 265ms)

  👍 0   ↪ Reply

Domina

💬 Reply to HyperGeoX [27] 🕐 September 28, 2023 2:00 am

Could you post the whole code snippet for the file HelloWorldWizard.cpp?

  👍 0   ↪ Reply

Links

1. https://www.learncpp.com/author/Alex/
2. https://www.learncpp.com/cpp-tutorial/programs-with-multiple-code-files/
3. https://www.learncpp.com/cpp-tutorial/configuring-your-compiler-choosing-a-language-standard/
4. https://www.learncpp.com/cpp-tutorial/compiling-your-first-program/
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